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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,782

11/18/2003

Scott D. Cohen

07844-0625001 / P578

6167

21876 7590 03/16/2009  
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EXAMINER

ALLISON, ANDRAE S

ART UNIT

PAPER NUMBER

2624

NOTIFICATION DATE

DELIVERY MODE

03/16/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/716,782	<b>Applicant(s)</b> COHEN ET AL.	
	<b>Examiner</b> ANDRAE S. ALLISON	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 01/05/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-17 and 19-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-17 and 19-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/22/2008</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Remarks***

1. The Office Action has been issued in response to amendment filed September 29, 2008. Claims 1, 3-17 and 19-54, are pending. Applicant's arguments have been carefully and respectfully considered in light of the instant amendment, and are not persuasive. Accordingly, this action has been made FINAL.

#### Claim Rejections – 35 USC section § 101

Claim 40 is directed to a system, therefore the machine readable medium language is suitable. Therefore the rejection of claims 40-53 is withdrawn.

#### Claim Rejections – 35 USC section § 103

In response to Applicant's argument on page Westman does not teach "a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels", however, the Examiner disagrees. Specifically, Applicant argued that Westman discloses that an image is segmented into components based on "connectivity of" adjacent pixel and one of ordinary skill in the art would conclude, at most, that each basic connected component includes only non-edge pixels. However, such conclusion is not concrete. First Westman teaches that the

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connectivity are based on connected component (see page 796, section 2, [p][005], lines 1-8), which equivalent to Applicant's invention. Also note that a threshold is used to determine which pixels belong to the object's boundaries, which is again equivalent to Applicants invention. Moreover, on page 797, [p][009], teaches where a determination is made whether two significant edges should be connected , which means that non-edge pixels has to be proceeds for that determination to be made. Figures 3a-3c, depicts various stages of segmentation, which shows different threshold levels applied to an image. Fig 3b has some dots and an extra line, Fig 3c does not have all the of the dots and the line is no longer present. This processing could not have been done without processing non-edge pixels.

Applicant also argued that Takashashi does not expressly disclose "selecting an edge pixel from a plurality of edge pixels", however, the Examiner disagrees. Clearly teaches selecting an edge pixel in step 1001 of Fig 11.

As to the rest of Applicant's argument, neither Huang, Noda, Curtright, Prakash, Tessadro nor Acharaya were relied upon for the rejection of claim 1.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS").

As to independent claim 1, Takahashi discloses a computer-implemented method for identifying one or more objects within an image (image recognition method; column 1, lines 11-12) the method comprising: receiving an image that includes two or more non-overlapping embedded images (e.g. 40 and 41, see Fig 4); identifying a plurality of edge pixels based on a respective gradient value (detect the color change between two objects, column 12, lines 61-63) associated with each of the plurality of edge pixels (edge image, column 12, line 54); selecting an edge pixel from the plurality of edge pixels (1001, see Fig 11); identifying a substantially connected component that includes non-edges pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels, wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels and an edge threshold value is used to locate an actual edge); and identifying a bounding area within the image, the bounding area surrounding the plurality of substantially connected edge pixels (e.g. 51, see Fig 4). However, Takahashi does not expressly disclose identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge

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pixels in the substantially connected component is based on a level of tolerance for non-edge pixels. Westman discloses a method for image segmentation (see abstract), which includes the step of identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels (see page 796, section 2, [p][005], lines 1-8). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modified the image recognition method of Takahashi with the image segmentation method of Westman to extract object from an image by scanning the image pixel by pixel from left to right and bottom to top in order to identify connected pixel regions i.e. regions of adjacent pixels which share the same set of intensity values, and after completing the scan, the equivalent label pairs are sorted into equivalence classes and a unique label is assigned to each class.

As to claim 3, Takahashi teaches the wherein identifying a plurality of edge pixels includes computing the respective gradient value for each of a plurality of pixels in the image (detect the color change between two objects, column 12, lines 61-63).

As to claim 4 Takahashi teaches the method wherein computing the gradient value for each of the plurality of pixels includes, for each pixel comparing respective pixel colors of a neighborhood of pixels surrounding the given pixel (column 30, lines 15-25).

As to claim 5, Takahashi teaches the method wherein computing the respective gradient value for each of the plurality of pixels includes using an image smoothing filter-to-filter noise from the image (column 2, lines 52-56).

As to claim 6, Takahashi teaches the method further comprising passing each component to a processor that extracts the location of the object from the component (column 4, lines 58-59).

As to claim 7, Takahashi teaches the method, further comprising refining the extracted location (column 4, lines 20-54-58).

As to claim 10, Takahashi teaches the method, further comprising merging the bounding are within the image with another bounding area within the image into a single bounding area (column 29, line 63-67).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290).

As to claim 8, Takahashi does not disclose expressly the method further comprising using the extracted location to crop the embedded image from the image. Huang discloses a method for identifying people (column 1, lines 23-13) including using the extracted location to crop the embedded image from the image (column 2, lines 57-58). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the method for identifying people of Huang to the image recognition method of Takahashi to eliminate unneeded portions not specifically depicted part of the extracted object (column 2, lines 58-60).

As to claim 11, Huang teaches the method further comprising: extracting a location of each of the two or more non-overlapping embedded images from the image; and using the location to seed a crop operation (column 2, lines 57-58).

As to claim 12, Huang teaches the method of wherein using the extracted object location to seed a crop operation includes: for each of the two or more non-overlapping embedded images in the image, using the location to define a cropping area; and cropping all the defined cropping areas in a single cropping operation (column 4, lines 20-24).



As to claim 13, Huang teaches the method wherein: the location specifies an alignment of one of the two or more non-overlapping embedded images with respect to the image; and using the location to define a cropping area includes using the alignment of one of the two or more non-overlapping embedded images to define an alignment of the cropping area (column 9, lines 45 - 60).

6. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290) further in view of Noda et al (Pub No.: US 2002/0030634).

As to claim 14, neither Takahashi or Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input. Noda discloses a method for image synthesis ([p][002], lines 1-2) wherein prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input ([p][0106], lines 1-3). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combined the image synthesis method of Noda with the image recognition method of Takahashi as modified by Huang so that a user could adjust the location of the boundaries or contours of the identified object(s) so that the object(s) can be cropped properly.

As to claim 16, Curtright does not expressly disclose the method wherein adjusting one or more of the defined cropping areas includes splitting a single cropping

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area into two or more cropping areas. However, it would have been obvious to split a single cropping area into two or more cropping areas so that if two cropped area are identified as one, the area would be split into two or more before performing the crop operation (OFFICIAL NOTICE).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290) further in view of Curtright et al (US Patent No.: 5,844,570).

As to claim 15, neither Takahashi or Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas merging two of the defined cropping areas into a single defined cropping area. Curtright discloses a method for generating digital map that includes merging two cropping areas into a single cropping area (column 6, lines 15-20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the method for generating digital map of Curtright to the image recognition method of Takahashi as modified by Huang so that if one cropped area is identify as two area objects, the cropped areas are merged into a single area before performing the crop operation.

Note that Curtright does not disclose performing the operation prior to cropping all the defined areas, however, it would have been obvious to crop all the defined areas so that if one object is erroneously identified as two, the areas would be merged or combined before carrying out the cropping operation (OFFICIAL NOTICE).

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8. Claims 9, 17, 19-33 and 40-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Prakash et al (US Patent No.: 6,778,698).

As to claim 9, Takahashi does not expressly disclose the method further comprising splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images. Prakash discloses an image segmentation method that includes splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images (column 3, lines 37-38). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the image segmentation method of Prakash with the image recognition method of Takahashi to split edge pixels of multiple objects erroneously identified as a single object into multiple objects.

As to independent claim 17, note the discussion above, this claim differs from claim 1 only in that claim 17 is computer program product whereas, claim 1 is method and the limitations computer-readable medium, instructions and programmable processor are additively recited in the preamble. Prakash teaches a computer program product stored on computer-readable medium (116, see Fig 2) comprising instructions (program instructions (see Fig 2) and executed by programmable processor (114, see Fig 2).

As to independent claim 33, note the discussion above of claims 1 and 17, all the limitations are discussed except: receiving a scanned image that includes multiple objects; erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object; and (6) repeating steps (2) through (5) until no more edge pixels are found. Takahashi teaches erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object (column 29, lines 63-65); and (6) repeating steps (2) through (5) until no more edge pixels are found. Note the discussion above, Westman teaches a scanned image that includes multiple objects (see page 796-797, section 2, [p][006]).

As to independent claim 40, this claim differs from claim 1 only in that claim 40 is system whereas, claim 1 is method and the limitations a display device and machine-readable storage device including a program product are additively recited. The machine-readable storage device including a program product is discussed above. Regarding the display device, Prakash clearly teaches a display (see column 1, line 51).

Claims 19-32 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 19-32 are product claims. Thus, claims 19-32 are analyzed as previously discussed with respect to claims 3-16 above.

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Claims 41-54 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 41-54 are system claims. Thus, claims 41-54 are analyzed as previously discussed with respect to claims 3-16 above.

9. Claims 34, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Tessadro (US Patent No.: 7,003,161).

As to claim 34, Takahashi does not expressly disclose the method further comprising setting the tolerance level based on a user input. Tessadro discloses a boundary detection method that includes the step of setting the tolerance level based on a user input (see column 4, lines 1-12). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Takahashi and Tessadro to locate an edge position bounded or defined by two significant colored region or color-textured regions with the aid of a GUI (column 3, lines 38-46).

Claim 36 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 36 is analyzed as previously discussed with respect to claim 34 above.

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Claim 38 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 38 is analyzed as previously discussed with respect to claim 34 above.

10. Claims 35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Acharaya et al (US Patent No.: 6,094,508).

As to claim 35, Takahashi does not expressly disclose the method further comprising automatically determining the tolerance level as a function of a spacing between the objects (see column 2, lines 53-59). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Takahashi and Acharya to localize a region of an image and then determine automatically without user intervention, the threshold to be applied for edge detection within the localization region (see column 2, lines 53-59).

Claim 37 differ from claim 35 only in that claim 35 is a method claim whereas, claim 37 is a product claim. Thus, claim 37 is analyzed as previously discussed with respect to claim 35 above.

Claim 39 differ from claim 35 only in that claim 35 is a method claim whereas, claim 39 is a product claim. Thus, claim 39 is analyzed as previously discussed with respect to claim 35 above.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Inquires***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRAE S. ALLISON whose telephone number is (571)270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

March 5, 2008

/Jingge Wu/

Supervisory Patent Examiner, Art Unit 2624